

(12) UK Patent Application (19) GB (11) 2 356 772 (13) A

(43) Date of A Publication 30.05.2001

(21) Application No 9928083.6

(22) Date of Filing 26.11.1999

(71) Applicant(s)
Nokia Mobile Phones Limited
(Incorporated in Finland)
Keilalahdentie 4, 02150 Espoo, Finland

(72) Inventor(s)
Graham Thomas

(74) Agent and/or Address for Service
Nokia IPR Department
Nokia House, Summit Avenue, Southwood,
FARNBOROUGH, Hampshire, GU14 0NG,
United Kingdom

(51) INT CL⁷
H04M 1/02, H04Q 7/32

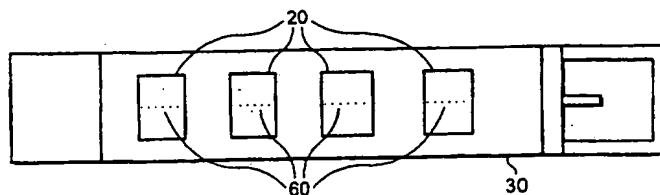
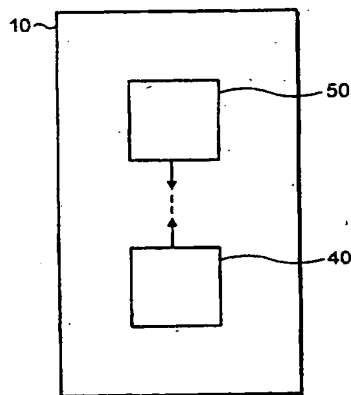
(52) UK CL (Edition S)
H4L LECY LEUX
H4J JK J36Q

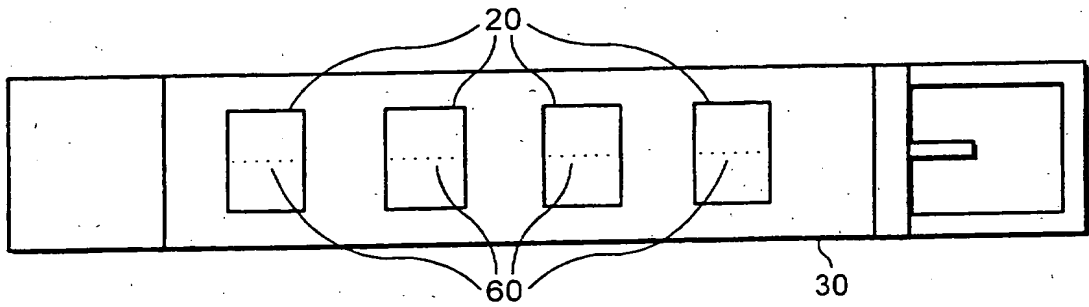
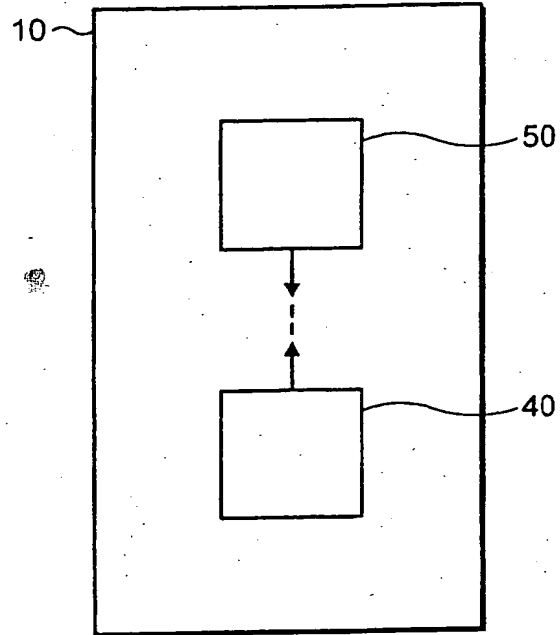
(56) Documents Cited
GB 2336966 A GB 2283151 A WO 94/11967 A1
WPI Abstract Accession No. 99-240465/199 920 &
JP11069305 A

(58) Field of Search
UK CL (Edition R) H4J JK, H4L LECCP LECY LED
LERX LESF
INT CL⁷ H04B 1/38, H04M 1/02, H04Q 7/32
ONLINE: WPI, EDOC, JAPIO

(54) Abstract Title
Portable radio communication device having remote extra memory

(57) A mobile radio handset (10) is provided with extra memory in the form of a plurality of remote memory modules which might for example be carried on a belt (30). Data is read into and out of these memories by means of a low-power radio link between the handset and each module.





A Radiotelephone

5 The present invention relates to a portable radio communication device such as a mobile phone, and in particular to arrangements for the storage of data therefor.

10 Mobile phones are becoming ever more advanced offering a growing range of sophisticated features and functionalities. For instance, as well as standard voice communications, mobile phones increasingly also allow for data communications such as SMS, and browser type applications. In Communicator type devices, mobile phones are being equipped with personal organiser software providing diaries, notes and address recording functions. Furthermore, videophones are now beginning to emerge.

15 In order to support these new and growing features, mobile phones are demanding more and more data storage capacity, i.e. memory space. Although developments in memory make up and design now allow for far more increased memory storage density and capacity than was previously possible, the advances in feature development outpaces memory development, with the net result being that in physical terms feature-rich mobile phones are required to be larger in size in order to accommodate the extra memory space necessary for supporting the additional functionalities. This dimensional expansion of mobile phones however is in direct conflict with the general trend in mobile phones design towards their miniaturisation.

20

25

Accordingly, and in one aspect the present invention provides a system comprising a portable radio communication device and a plurality of memory modules situated remote from and external of the portable radio communication device,

30

said portable radio communication device and each of the memory modules respectively including low power radio frequency means for respective low power radio frequency connections therebetween,

the portable radio communication device including data transfer means for at
5 least one of read access or write access in respect of one or more of the memory modules,

said data transfer means being coupled to said respective low power radio frequency means and effecting said at least one of read or write accesses by respective low power radio frequency connections between the low power
10 radio frequency means of the portable radio communication device and the low power radio frequency means of the memory modules.

By means of the invention, a portable radio communication device can store data on, and retrieve data from, any of a number of memory modules which
15 are located away from the device itself and which are accessed by means of low power radio frequency links. Accordingly, the size and design of the portable radio communication device is not fettered by the requirement for 'on-board' data storage means, thereby increasing the design freedom for the device and overall leading to a more compact device. Furthermore, the low
20 power radio frequency link between the portable radio communication device and the memory module means that there needs to be no physical links (such as troublesome wires) between the two, thus making for a very convenient arrangement.

25 The present invention will now be described by way of example with reference to the accompanying drawing which is a schematic representation of a preferred embodiment of the present invention.

Referring to the drawing, there is shown a portable radio communication
30 device 10 such as a mobile phone which is capable of cellular communication

with a network. The mobile phone is provided with the standard features necessary for two-way cellular communication (voice, data, internet) with a network. The drawing also schematically shows a series of memory modules 20, which in accordance with a preferred embodiment of the invention are mounted on a harness in the form of a memory belt 30. The belt 30 carrying memory modules 20 is designed to be worn by a user. Each of the memory modules provided on the memory belt has a non-volatile memory storage capacity, and data can be written to and read from such memory.

10 The mobile phone includes a data transfer means 40, under the control of a processor in the phone, and this is used to carry out point-to-point transmissions relating to read and write operations between the mobile phone and each of the memory modules. In a read operation, the mobile phone directs that data which is located in a selected memory module be transferred from that memory module to the mobile phone. Conversely, in a write operation, the mobile phone directs that data be transferred from the phone to one or more selected memory modules for storage therein. The flow of data between the mobile phone and a memory module is not by means of wires between the two, but instead by means of low power radio frequency links between the two.

For this purpose, both the mobile phone and each of the memory modules are equipped with low power radio frequency means. In the mobile phone, the low radio frequency means is denoted at 50 and in the memory modules the low power radio frequency means is denoted at 60. The data transfer means 40 and low power radio frequency means are inter-connected. Suitably, the low power radio frequency means may be that as defined in the Bluetooth protocol, and in this regard, the mobile phone contains a Bluetooth micro-control module, memory and power source.

Accordingly, in a read operation, the data transfer means 40 orders transmission of request signals to the memory module via the low power radio frequency means 50 of the mobile phone. These request signals are transmitted in a low power frequency transmission. The request signals are
5 received by the memory module 20, where the signals are decoded and then used to control location and retrieval of the required data. Once the requested data has been located in the memory module 20 this data is coded for transmission and subsequently transmitted to the mobile phone 10 by the low power radio frequency means 60 of the memory module 20 in a low
10 power radio frequency signal. This low power radio frequency signal is received by the low power radio frequency means of the mobile phone where it is decoded and the required data extracted therefrom and subsequently loaded for example in the RAM of the mobile phone for further use.

15 In a write operation, a broadly reverse series of steps occurs. Specifically, in this mode, the data transfer means 40 controls the transfer of data to be written to the memory module. That data may initially be stored in RAM, and so the data transfer means commands the movement of that data from RAM to the low power radio frequency means 50 of the mobile phone 10. Here the
20 data is coded and transmitted as a low power radio frequency signal to the selected memory module. At the memory module 20, this signal is received by the low power radio frequency means 60 thereof, and the data extracted from the signal. Accordingly, the data is loaded into the memory module for storage therein.

25

The present invention may be embodied in other specific forms without departing from its essential attributes. For example, it is envisaged that data may be transferred from a fixed point data kiosk to the memory modules for read/write access. In an alternative to each of the memory modules having its
30 own low power radio frequency means, there could be just one low power

radio frequency means servicing each of the plurality of memory modules. Accordingly reference should be made to the appended claims and other general statement's herein rather than to the foregoing specific description as indicating the scope of invention.

5

Furthermore, each feature disclosed in this specification (which term includes the claims) and/or shown in the drawings may be incorporated in the invention independently of other disclosed and/or illustrated features. In this regard, the invention includes any novel features or combination of features disclosed
10 herein either explicitly or any generalisation thereof irrespective of whether or not it relates to the claimed invention or mitigates any or all of the problems addressed.

The appended abstract as filed herewith is included in the specification by
15 reference.

Claims

1. A system comprising a portable radio communication device and a plurality of memory modules situated remote from and external of the portable
5 radio communication device, said portable radio communication device and the memory modules respectively including low power radio frequency means for respective low power radio frequency connections therebetween, the portable radio communication device including data transfer means for at least one of read access or write access in respect of one or more of the
10 memory modules, said data transfer means being coupled to said respective low power radio frequency means and effecting said at least one of read or write accesses by controlling said respective low power radio frequency connections between the low power radio frequency means of the portable radio communication device and the low power radio frequency means of the
15 memory modules.
2. A system according to claim 1, wherein said data transfer means effects data transfer between a selected one of the plurality of memory modules and a selected other one of the memory modules by a low power
20 radio frequency connection between respective low power radio frequency means of said memory modules.
3. A system according to claim 1 or claim 2, wherein said data transfer means is user controllable for selectively controlling data transfer between the
25 portable radio communication device and the memory modules, and between individual memory modules.
4. A portable radio communication device having a low power radio frequency unit and being adapted for use with a system as defined in any
30 preceding claim.

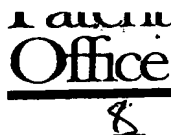
5. A memory module having a low power radio frequency unit and being adapted for use with a system as defined in claims 1 to 4.

5 6. A system substantially as hereinbefore described with reference to the accompanying drawing.

7. A portable radio communication device substantially as hereinbefore described with reference to the accompanying drawing.

10

8. A memory module substantially as hereinbefore described with reference to the accompanying drawing.



Application No: GB 9928083.6
Claims searched: all

Examiner: Nigel Hall
Date of search: 19 May 2000

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK CI (Ed.R): H4J (JK); H4L (LECCP, LECY, LED, LERX, LESF)
Int CI (Ed.7): H04B 1/38; H04M 1/02; H04Q 7/32
Other: Online: WPI, EDOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2336966 A (TOOTH) See p.3 line34- p.4 line8	1 at least
A	GB 2283151 A (MULTI MEDIA)	"
X	WO94/11967 A1 (WEEKS) See whole doc.	"
X	WPI Abstract Accession No.99-240465/199920 & JP11069305A (HITACHI) 03.09.99 (see abstract)	"

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.